

## Rare case of jejunal closed-loop obstruction by omental bands with perforation at the duodenojejunal junction and proximal jejunum

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### Abstract

A 17-year-old male was admitted to the emergency department in our hospital with complaints of subacute onset of abdominal pain along with recurrent bilious vomiting and a history of abdominal surgery at age of 1 year. CECT Abdomen was suggestive of focal jejunal segmental narrowing with inflammatory mural thickening at the duodenojejunal junction and proximal jejunum. On exploratory laparotomy, there was closed-loop obstruction of proximal jejunum due to omental bands along with two perforations, one near the duodenojejunal junction and the other at two feet distal to the duodenojejunal junction. About a 5 cm long segment of necrosed bowel below the duodenojejunal junction containing the site of perforation was resected and duodenojejunal anastomosis was done. Distal perforation was exteriorized as loop jejunostomy. Stoma closure was done after 3 weeks of the first surgery when the patient's general condition improved. The patient was discharged on the twelfth postoperative day. This case with omental bands causing proximal jejunal close-loop obstruction and perforation is rare and signifies the need for appropriate diagnosis and early management to prevent life-threatening consequences.

### Keywords

Intestinal obstruction; Close-loop obstruction; Loop jejunostomy.

### Abbreviations

CECT: Contrast Enhanced Computed Tomography; ICU: Intensive Care Unit; CT: Computed Tomography.

### Introduction

Omental bands causing closed-loop obstruction near the duodenojejunal junction and proximal jejunum along with silent perforation are rare. The delayed presentation can lead to strangulation and necro-

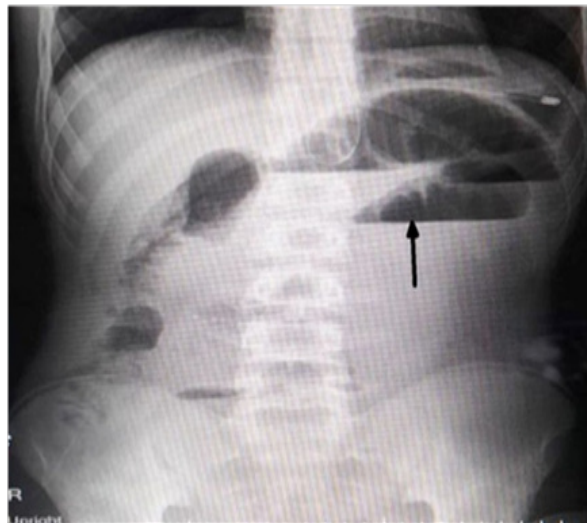
sis of the intestine leading to sepsis and possible death of the patient. Duodenojejunal junction perforations are mostly traumatic and rarely mechanical. Their management differs from the distal bowel perforations as proximal loop jejunostomy is high output stoma and causes more complications compared to distal loop stoma. This case highlights the need for early diagnosis and prompt management to prevent unwanted complications which may be lifesaving in selected cases.

## Case Report

A 17-year-old man presented to the emergency department with a history of mild abdominal pain in the epigastrium radiating towards the left lumbar region along with nonprojectile bilious vomiting and not passing stool for 4 days. The patient had a history of abdominal surgery at one year of age (documents not available) and belongs to low socioeconomic status. On general examination, the patient was cachexic along with tachycardia. Abdominal examination revealed mild tenderness in the upper left quadrant. Bowel sounds were exaggerated and sluggish in the upper and lower abdomen respectively. The digital rectal examination results were normal.

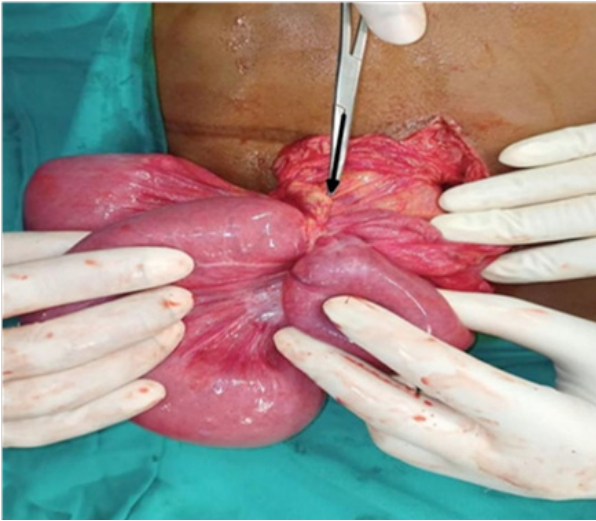
## Investigation

The total leukocyte count was 14000/cu mm. Abdominal radiography was suggestive of multiple air-fluid levels (Figure 1).



**Figure 1:** X-ray abdomen erect immediately after admission showing multiple air-fluid levels (black arrow).

Chest X-ray was normal. CECT revealed focal jejunal segmental narrowing with inflammatory mural thickening at the distal jejunal and duodenojejunal junctions, suggestive of inflammatory bowel strictures along with mild circumferential wall thickening and fat stranding at the ileocecal junction and mesenteric lymphadenopathy. Initially, the patient was managed conservatively, but one week later, the patient experienced recurrent vomiting episodes after removing the nasogastric tube twice. Repeat abdominal radiography showed dilated small bowel loops with increased air-fluid levels.



**Figure 2:** Figure showing closed-loop obstruction of the proximal jejunum due to omental bands (black arrow).



**Figure 3:** Figure showing perforation at the proximal jejunum near the duodenojejunal junction (black arrow) due to closed-loop obstruction.

Owing to non-compliance with conservative management, the patient underwent exploratory laparotomy. Exploratory laparotomy revealed a closed-loop obstruction of the proximal jejunum measuring approximately 70 cm due to the omental bands (Figure 2).

**Surgery and histology:** Two perforations were noted, one near the duodenojejunal junction and the other two feet distal to the duodenojejunal junction (Figure 3). After releasing obstructive band, about 5 cm length of bowel found necrosed near the duodenojejunal junction containing the site of perforation was resected, and duodenojejunal anastomosis was performed. Distal perforation was present two feet distal to the previous perforation due to pressure necrosis along with surrounding edema. The distal perforation was exteriorized as loop jejunostomy.



**Figure 4:** Figure showing normal distal ileocologram findings with stomal opening (black arrow) and patent distal large bowel loops (green arrows).

During the post-operative period, the patient was admitted to the ICU for parenteral nutrition. After two weeks, following improvement in the general condition, the patient was shifted to the general ward and allowed to be on orally diet. However, due to increasing stomal complications and worsening metabolic profile owing to high-output stoma, it was decided to close the stoma early. Distal ileocologram findings were normal (Figure 4).

Jejunostomy closure was performed three weeks postoperatively. Histopathology revealed dense acute chronic intestinal inflammation along with reactive lymphoid hyperplasia.

### **Outcome and follow-up**

After stoma closure, the patient was admitted to the post-operative ICU for 2 days. The nasogastric tube was maintained for 4 days. After the resumption of bowel sounds, the patient was allowed oral liquids. All post-operative routine investigations were normal. His midline wound had recovered normally. The patient was discharged on the twelfth post-operative day. The patient was followed up after three weeks, with no active complaints.

### **Discussion**

Bowel obstruction due to adhesions is a common pathology, particularly in the Western world, with an overall mortality rate of 10%. Early diagnosis and treatment are required to achieve good outcomes [1]. When the peritoneal cavity is opened, it leads to the formation of potentially obstructive structures (adhesions or bands) in almost 95% of patients [2]. Although adhesions ordinarily disintegrate within 72 h, injury-induced ischemia may diminish fibrinolysis and allow the band to persist [3]. Adhesions that are not broken down will mature within 10-14 days; greater than 20% of adhesive obstructions occur within one month of injury, and approximately 50% develop within 1-2 years [4,5].

Intra-abdominal adhesions that cause obstruction are commonly observed in the small intestine, particularly in the ileum [6]. In the absence of evidence corroborating another cause of obstruction, the identification of adhesions, as a cause of small bowel obstruction, remains a diagnosis of exclusion based on the finding of an abrupt change in the bowel caliber [7].

The risk of strangulation of bowel loops is high [8]. Closed-loop small bowel obstruction occurs when the lumen is blocked at two contiguous points, forming a segment of the intestine with no proximal or distal outlet. Abdominal distension which is most commonly found in patients with small bowel obstruction is minimal in closed-loop obstructions [9]. The patient may appear dehydrated, along with high-pitched bowel sounds. Abdominal auscultation generally has poor specificity for bowel obstruction [10].

Abdominal radiographs are initially performed because of their relatively low cost and radiation exposure [11]. Abdominal CECT is more helpful in determining the location and etiology of small bowel obstruction when this diagnosis is strongly suspected. CT imaging has a high positive predictive value for adhesive small-bowel obstruction owing to the appearance of the transition zone caused by adhesion [12]. Early identification and treatment are essential in the case of closed-loop obstruction, which can quickly

progress to strangulation and necrosis [13].

Non-operative treatment has been successful in up to 80% of cases of uncomplicated partial small bowel obstruction due to adhesions. Treatment is first performed with medical management, such as fluid and electrolyte replacement and intestinal decompression through the nasogastric tube. Early surgical exploration is indicated if symptoms are aggravated by fever, tachycardia, and increasing leukocytosis despite medical treatment [14,15]. Duodenojejunal perforations are rare and proximal small intestine perforations differ from distal perforations in terms of postoperative complications.

## Conclusion

Omental bands causing closed-loop obstruction involving the proximal jejunum near the duodenojejunal junction are rare and should be considered in the differential diagnosis of intestinal obstruction in patients arriving at emergency. Proper diagnosis, timely intervention, and surgical management of these bands are necessary in patients with closed-loop proximal jejunal obstruction to prevent the ongoing cascade of necrosis and sepsis. Postoperative care is important in the management of these patients, and treatment of high-output stoma, such as proximal jejunostomy, along with judicious use of parenteral nutrition, is required for these patients, as proximal stoma is the most appropriate lifesaving option for these patients in the emergency department in hospitals with limited resources.

**Disclosure:** The authors declare no conflict of interest.

## References

1. Rami Reddy SR, Cappell MS. A systematic review of the Clinical presentation, Diagnosis, and Treatment of small bowel obstruction. *Curr Gastroenterol Rep.* 2017; 19: 28.
2. Miller G, Boman J, Shrier I, Gordon PH. Etiology of small bowel obstruction. *Am J Surg.* 2000; 180: 33-36.
3. Attard JP, MacLean AR. Adhesive small bowel obstruction: epidemiology, biology, and prevention. *Can J Surg.* 2007; 50: 291-300.
4. Liakakos T, Thomakos N, Fine PM, Dervenis C, Young RL. Peritoneal adhesions: etiology, pathophysiology, and clinical significance. *Recent advances in prevention and management. Dig Surg.* 2001; 8: 260-273.
5. Dijkstra FR, Nieuwenhuijzen M, Reijnen MMPJ, van Goor H. Recent clinical developments in pathophysiology, epidemiology, diagnosis and treatment of intra-abdominal adhesions. *Scand J Gastroenterol.* 2000; 232: 52-59.
6. Luijendijk W, de Lange DC, Wauters CC, Hop WC, Duron JJ, et al. foreign materials in postoperative adhesions. *Ann Surg.* 1996; 223: 242-248.
7. Balthazar EJ, George W. Holmes Lecture. CT of small-bowel obstruction, *AJR Am J Roentgenol.* 1994; 162: 255-261.
8. Padhy BP. Congenital internal hernia a rare cause of acute intestinal obstruction. *Indian J Surg.* 2013; 75:156-158.
9. Markogiannakis H, Messaris E, Dardamanis D, Pararas N, Tzertzemelis D, et al. Acute mechanical bowel obstruction: clinical presentation, etiology, management, and outcome. *World J Gastroenterol.* 2007; 13: 432-437.
10. Breum BM, Rud B, Kirkegaard T, Nordentoft T. Accuracy of abdominal auscultation for bowel obstruction. *World J Gastroenterol.* 2015; 21: 10018-10024.

11. Kulaylat MN, Doerr RJ. Small bowel obstruction. Holzheimer RG, Mannick JA, editors. In: Surgical Treatment: Evidence-Based and Problem-Oriented. Munich: Zuckschwerdt; 2001.
12. Petrovic B, Nikolaidis P, Hammond NA, Grant TH, Miller FH. Identification of adhesions on CT in small bowel obstruction. Emerg Radiol. 2006; 12: 88-93.
13. Beardsley C, Furtado R, Mosse C, Gananadha S, Fergusson J, et al. small bowel obstruction in the virgin abdomen: the need for a mandatory laparotomy explored. Am J Surg. 2014; 208: 243-248.
14. Augustin G, Majerovic M: Non-obstetrical acute abdomen during pregnancy. Eur J Obstet Gynecol Reprod Biol. 2007; 131:4-12.
15. Sharp HT. The acute abdomen during pregnancy. Clin Obstet Gynecol. 2002; 45: 405-413.

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